

force applied onto the base member, wherein the combined force is a vector sum of the first and second forces.

**43.** The vibration device of claim 42, wherein the means for independently modulating is further operable to control a direction of the combined force applied onto the base member.

**44.** The vibration device of claim 41, wherein the means for controlling the timing of the first and second actuators is further operable to repeatedly reverse a direction of translation of the movable member of each actuator relative to the base member at substantially the same time.

**45.** The vibration device of claim 41, wherein the means for controlling the timing of the first and second actuators is further operable to repeatedly reverse a direction of rotation of the movable member of each actuator relative to the base member at substantially the same time.

**46.** The vibration device of claim 41, wherein the means for controlling adjusts the timing of the first and second actuators such that the movable member of the first actuator reverses direction of motion relative to the base member at every occurrence that the movable member of the second actuator reverses direction of motion relative to the base member, and the reversals of the direction of motion corresponding to the first and second actuators occur at substantially the same time.

**47.** The vibration device of claim 41, wherein:

for a first duration of vibration the means for controlling the timing of the first and second actuators is operable to cause the movable member of the first actuator to reverse direction of motion relative to the base member for every occurrence that the movable member of the second actuator reverses direction of motion relative to the base member, and the reversals of motion occur at substantially the same time; and

for a second duration of vibration the means for controlling the timing of the first and second actuators is operable to cause the movable member of the first actuator to not reverse direction of motion relative to the base member for every occurrence that the movable member of the second actuator reverses direction of motion relative to the base member, and the reversals of motion do not occur at substantially the same time.

**48.** A method of controlling a vibratory device, comprising:

imparting a first vibration force to a base with a first actuator;

imparting a second vibration force to the base with a second actuator; and

synchronously vibrating the first and second actuators to impart a combined vibration force to the base by applying amplitude information, phase information and frequency information to the first and second actuators.

**49.** The method of claim 48, wherein the frequency information applied to the second actuator is substantially identical to the frequency information applied to the first

actuator, and the phase information applied to the second actuator is substantially identical to the phase information applied to the first actuator.

**50.** The method of claim 48, further comprising:

specifying a combined vibration amplitude and a direction of vibration;

specifying a frequency of vibration; and

controlling the combined vibration amplitude, the direction of vibration and the frequency of vibration to synchronously vibrate the first and second actuators.

**51.** A method for operating a vibration device, comprising:

providing a first actuator operable to generate a first vibration force having a first frequency of vibration and a first magnitude of vibration associated therewith, the first actuator being further operable to impart the first vibration force to a base member;

providing a second actuator operable to generate a second vibration force having a second frequency of vibration and a second magnitude of vibration associated therewith, the second actuator being further operable to impart the second vibration force to the base member;

controlling the first and second actuators so that the first frequency of vibration is substantially identical to the second frequency of vibration;

independently modulating the magnitudes of the first and second vibration forces to control a direction of a combined vibration force applied onto the base member, wherein the combined vibration force is a vector sum of the first and second vibration forces; and

controlling timing of vibrations of the first and second actuators so that peaks of the magnitudes of the first and second vibration forces occur substantially concurrently.

**52.** A method of controlling a vibration device, comprising:

providing a first actuator having a member moveable relative to a base, the first actuator being operable to apply a first force onto the base member;

providing a second actuator having a member moveable relative to the base, the second actuator being operable to apply a second force onto the base member; and

controlling timing of the first and second actuators such that the moveable member of each of the first and second actuators repeatedly reverses direction of motion relative to the base member at substantially the same time.

**53.** The method of claim 52, further comprising independently modulating magnitudes of the first and second forces to control a direction of a combined force applied onto the base member, wherein the combined force is a vector sum of the first and second forces.

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